



Approval # 20040007

Environmental & Regulatory Services Division
Bureau of Petroleum Products and Tanks
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: Automatic Tank Gauging and Liquid Monitoring Systems

Manufacturer: OMNTEC Manufacturing Inc.
1993 Pond Rd.
Ronkonkoma, NY 11779

Expiration of Approval: December 31, 2009

SCOPE OF EVALUATION

The OEL8000II Automatic Tank Gauging (ATG) System manufactured by OMNTEC Manufacturing Inc., was evaluated as a means of monthly monitoring and continuous statistical leak detection for underground tanks in accordance with **s. Comm 10.61 (4)**. The OMNTEC BX series non-discriminating liquid sensors (BX-LS, BX-LWF); the BX series discriminating liquid sensors (BX-PDS, BX-PDWS, BX-PDWF); the BX series brine level (BX-RES) and product level sensors (BX-L) were evaluated as a means of interstitial monitoring in accordance with **s. Comm 10.61 (7)**. The OMNTEC LU and LPD leak detection controllers and non-discriminating liquid sensors (LS-ASC, LWF); discriminating liquid sensors (PDS, PDWS, PDWF); brine level (L-R-1) and product level sensors were evaluated as a means of interstitial monitoring in accordance with **s. Comm 10.61 (7)**.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

DESCRIPTION AND USE

OEL8000II

The OEL8000II consists of a console and keypad that can accommodate various types of probes and sensors. The standard ATG probe (MTG series) is a magnetostrictive probe that senses the liquid level. Each probe has temperature sensors that are used to correct the level for temperature effects. A water sensor is used to detect water ingress.

The OEL8000II console and probe may be used on tanks that contain gasoline, diesel, aviation fuel, #4 fuel oil, and other liquids with known coefficients of expansion and density with manufacturers approval.

OEL8000II w/CITLDS

When used for continuous statistical leak detection, the system determines when the tank is stable enough to begin data collection. Total data collection time can vary from a minimum of 3 hrs up to 14 days. If the tank failed the 0.20 gph test for the month, or if the data was insufficient for performing the calculation, the system will alert the operator to manually run a four-hour static test before the end of the monthly reporting period.

Note: For all models, monthly testing can only be performed on one tank at a time. If several tanks are manifolded together, an isolation valve has to be installed so as to separate the tanks individually.

Liquid Sensors

The OMNTEC Liquid Sensors are designed to detect fluids in the interstitial space of double-wall tanks or piping and in sumps. The BX series sensors are for use with the OEL8000II ATG controller only. The LS-ASC, LWF, PDS, PDWF, L-R-1 and L series sensors are for use with the LU and LPD stand-alone controller units only. All of the discriminating and non-discriminating sensors contain a pulsing light source and a photo-sensor that detects reflected light. A normally closed circuit (non-alarmed condition) exists in a dry condition because light is reflected back to the sensor through the use of a prism. The presence of a liquid will result in light being refracted away from the photo-sensor creating an open circuit (alarm condition). Discriminating sensors also contain a conductivity sensor to determine if the liquid is hydrocarbon or water.

Testing of all liquid sensors does not require removal from the normal detection location. When the test button is pushed on the controller, the normally closed light beam path is opened, which simulates an actual leak occurrence, sending an alarm signal to the controller. The controller responds to the alarm signal by turning on an audio/visual alarm and printing the test results, if equipped.

TESTS AND RESULTS

OEL8000II and OEL8000II w/CITLDS

Testing of all OEL8000II models for monthly monitoring and tank tightness testing was conducted in accordance with the EPA Automatic Tank Gauging Systems protocol. When using a leak declaration threshold of 0.10 gph, the probabilities of detection of a leak of 0.20 gph, was certified to within the 95-5 ranges required by the EPA protocols.

Testing of the OEL8000II w/CITLDS was conducted in accordance with a modified version of the EPA Automatic Tank Gauging Systems protocol. When using a leak declaration threshold of 0.10 gph, the probabilities of detection and false alarm of a leak of 0.20 gph were certified to within the 95-5 ranges required by the EPA protocols.

Liquid Sensors

Testing of the liquid sensors was conducted in accordance with the Alternative EPA Test procedures for Liquid Level Sensors protocol.

MONITORING SYSTEM OUTPUT

Detailed here are examples of the typical Alarm Report, Tank Leak Report, Tank Auto Leak Report, and Line Leak Test Report.

<pre> OEL8000 IIg. Inc. Tel: 1 (631) 981-2001 Fax: 1 (631) 981-2007 SITE INFORMATION: Name: SMITH SITE Addr: 122 MAIN ST City, State, Zip: HOMETOWN NY 12945 SITE MANAGER: Wern PHONE: 551224444 ID#: EL034444 VER: 4.23 ENG:040706D6 JUL 14, 2003 04:08 AM ---VLD LOG DATA Tank 8, DIESEL Start Time 0E 07/15/03 10:06:05 Elapsed Time 00:21:54 Start Temp. 76.65 Deg. End Temp. 73.59 Deg. Start Water: 0.000 (G) End Water: 0.000 (G) Start Level: 17.642 (In) End Level: 17.642 (In) Start Vol. 308.172 (G) End Vol. 308.819 (G) Delta (G) -0.647 (G) Rate: -1.772 GPH 1 GPH Test, Thresh .05 FAILED .2 GPH Test, Thresh .1 FAILED </pre>	<pre> ---OVRTC PROBE 0E 07/15/03 10:20:06 Tank 1 Product Type: Unleaded Product Height: 22.48 (In) Water: 0.46 (In) Gross Volume: 465.08 (G) T.C.: 455.54 (G) Water: 5.08 (G) Ullage: 542.92 (G) TEMP.: 73.98 (F) ---OVRTC SENSOR 0E 07/15/03 10:20:55 S#: 1, P/N: EXLS, S/N: 00000052 Location: MORSEL! ---OVRTC SENSOR 0E 07/15/03 10:42:38 S#: 9, P/N: EXECS, S/N: 200014507 Tank#: 1, Ible, Wall#: 7, MORSEL! ---OVRTC SENSOR 0E 07/15/03 10:43:09 S#: 17, P/N: EXLRA, S/N: 310021903 Tank#: 1, Ible, High#: 3, MORSEL! </pre>
<p>VLD Log Data Report Example: Last tank test history report for all active tanks.</p>	<p>Sensor Status Report Example: Current condition of all interstitial and sump sensors</p>

<pre> ID#: EL034444 VER. 4.23 ENG040706D6 JUL 14, 2003 16:08 RM ---Testing FROM FROM Tests OK ---Testing R&M PASSED ---Check Slot Slot 1 Annunciator Board Slot 2 Relay Board Slot 3 Relay Board Slot 6 Low Voltage Board --Testing Line Leak EDs TEST ---Testing Level Probes T# PRODUCT TYPE TEST T1 Unleaded P T2 Super Unleaded P T3 Regular P T4 Premium P T5 Kerosene P T6 Jet Fuel P T7 Gas P T8 DIESEL P ---Testing Leak Sensors S# P/N LABEL TEST 01 BLS P (S/N: 000000052) 02 BLS T 2,Sump#: 12 P (S/N: 000021412) </pre>		<pre> CORNET Mfg., Inc. Tel: 1(631) 981-2001 Fax: 1(631) 981-2007 SITE INFORMATION: Name: SMITH SITE Addr: 123 MAIN ST City, State, Zip: HOMETOWN ME 12345 SITE MANAGER: Vern PHONE: 5551234444 ID#: EL034444 VER. 4.23 ENG040706D6 JUL 14, 2003 16:08 RM ---CITLD REPORT 1.12 JUL, 2003 Results: Tank 1, Unleaded Start Time: TH 07/17/03 00:31:27 End Time: TH 07/17/03 03:35:58 Slope: 0.065 GPH .2 GPH Test, Thresh .1 PASSED + Pass Height 4.5 5.1 Tank 2, Super Unleaded Start Time: WE 07/16/03 18:20:55 End Time: WE 07/16/03 21:25:32 Slope: 0.015 GPH .2 GPH Test, Thresh .1 PASSED + Pass Height 60 4.5 6Q </pre>
<p>System Test Report Example: Check of sump, interstitial, consoles and probes. Will show alarm condition (A) if present.</p>		<p>CITLD Report Example: Current status of 24-hour leak detection (CITLD) for all active tanks.</p>

LIMITATIONS / CONDITIONS OF APPROVAL

General

- All monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer instructions, and certified every 12 months for operability, proper operating condition, and proper calibration. Records of sampling, testing, or monitoring shall be maintained in accordance with **Comm 10.625**.
- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- While 3rd party testing does determine a required minimum tank level, EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. Consistent testing at low levels could allow a leak to remain undetected.

During leak testing, a minimum level of product in tank shall be maintained so as to ensure testing of the portion of the tank and/or piping that routinely contains product, regardless of testing system capability. For instance, if product levels are routinely maintained at 60%, but the leak detection system is capable of testing at 15% product level, then testing shall be performed at 60% levels.

OEL8000II ATG's (0.2 gph static monitoring)

- Critical performance parameters for the OEL8000II ATG's with the MTG series probe:

Parameter	Value																
Maximum Tank Size ¹	Up to 30,000 gallons																
Minimum Tank Level (0.2 gph testing only)	Minimum product level is based on tank diameter as follows: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><u>Probe Working Length</u> (Tank ID in inches)</th> <th><u>Minimum Level (in)</u></th> </tr> </thead> <tbody> <tr> <td>0 thru 48</td> <td>12</td> </tr> <tr> <td>49 thru 64</td> <td>15</td> </tr> <tr> <td>65 thru 72</td> <td>16</td> </tr> <tr> <td>73 thru 96</td> <td>20</td> </tr> <tr> <td>97 thru 126</td> <td>25</td> </tr> <tr> <td>127 thru 132</td> <td>26</td> </tr> <tr> <td>133 or greater</td> <td>contact OMNTEC</td> </tr> </tbody> </table>	<u>Probe Working Length</u> (Tank ID in inches)	<u>Minimum Level (in)</u>	0 thru 48	12	49 thru 64	15	65 thru 72	16	73 thru 96	20	97 thru 126	25	127 thru 132	26	133 or greater	contact OMNTEC
<u>Probe Working Length</u> (Tank ID in inches)	<u>Minimum Level (in)</u>																
0 thru 48	12																
49 thru 64	15																
65 thru 72	16																
73 thru 96	20																
97 thru 126	25																
127 thru 132	26																
133 or greater	contact OMNTEC																
Waiting time between filling tank and test start (Stabilization Time)	4 hours minimum																
Minimum Test Period ²	4.5 hours																

- 1: Monthly and annual testing can only be performed on one tank at a time. If several tanks are manifolded together, a solenoid valve will have to be installed so as to separate the tanks individually.
- 2: There must be no dispensing or delivery during testing.

OEL8000II w/CITLDS (24-hour, 0.2 gph monthly monitoring)

Note: If the tank fails the 0.20 gph CITLDS test for the monthly period, or if the data was insufficient for performing the calculation, the operator must, before the end of the 30th day, manually run the static test above.

In addition, if the data was insufficient (inconclusive) for performing the calculation for 2 consecutive months, the operator shall, before the end of the second month, perform a tightness test in accordance with Comm 10.61(3).

- Critical performance parameters for the OEL8000II w/CITLDS using the MTG series probes are:

Parameter	Value
Maximum Tank Size ¹	Up to 18,000 gallons
Minimum Tank Level	12.7%
Maximum Monthly Throughput	154,195 gallons

- 1: Monthly and annual testing can only be performed on one tank at a time. If several tanks are manifolded together, a solenoid valve will have to be installed so as to separate the tanks individually.

Liquid Level Sensors

- The Liquid Sensors shall be placed such that a release from any portion of the tank or piping will be detected.

Sensors for use with the OEL8000II controller:

Part Number	Description	Application
BX-PDS	Discriminating Sump Sensor	Piping/Dispenser Sump Tank Interstitial
BX-PDWS	Discriminating Sensor for Double-Wall Tanks	Steel and Xerxes 4' Dia. Fiberglass Tank Interstitial
BX-PDWF	Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
BX-LS	Non-Discriminating Sensor for Double-Wall Tanks and Sumps	Piping/Dispenser Sump Steel and Xerxes 4' Dia. Fiberglass Tank Interstitial
BX-LWF	Non-Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
BX-RES	Sensor for Brine-Filled Double-Wall Tanks	Fiberglass Tank Hydrostatic Reservoir
BX-L-SERIES	Non-Discriminating Liquid Level Sensor	Piping/Dispenser Sump

Sensors for use with the LU and LPD controllers:

Part Number	Controller	Description	Application
LS-ASC	LU	Non-Discriminating Sensor for Double-Wall Tanks and Sumps	Piping/Dispenser Sump Steel Tank Interstitial
LWF	LU	Non-Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
L-1-L,S,D	LU OR LPD	Non-Discriminating Liquid Level Sensor	Piping/Dispenser Sump
PDWF	LPD	Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
PDWS	LPD	Discriminating Sensor for Double-Wall Tanks	Steel Tank Interstitial
PDS	LPD	Discriminating Sump Sensor	Piping/Dispenser Sump Tank Interstitial
L-R-1	LPD	Sensor for Brine-Filled Double-Wall Tanks	Fiberglass Tank Hydrostatic Reservoir

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The

Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: January 4, 2005

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____ Date: _____